

What Is Claimed Is:

1. A disk array device comprising:

a channel adapter connected to a host device and external device via a communications port for controlling the exchange of data with the host device and external device;

a disk adapter for controlling the exchange of data with a memory device;

a cache memory used by said channel adapter and disk adapter;

one or more logical system partitions which are constructed by logically dividing the resources provided by said channel adapter, disk adapter, memory device and cache memory;

a transfer amount detection part which detects the amount of data transferred to said external device from said logical system partitions for each of said logical system partitions; and

a data transfer control part which compares a specified value that is preset for each of said logical system partitions and the data transfer amount detected by said transfer amount detection part, and performs band control that limits the transfer of data from said logical system partitions to said external devices in cases where the data transfer amount exceeds said specified value.

2. The disk array device according to claim 1, wherein data transfer to said external device is performed in response to a write request from said host device.

3. The disk array device according to claim 1, further comprising a managing part that is used to set said specified value in a variable manner.

4. The disk array device according to claim 1, further comprising a system partition managing part for

altering setting within said logical system partitions and a system managing part for setting the assignment of said resources to said logical system partitions and said specified value in a variable manner.

5. The disk array device according to claim 1, wherein said specified value can be set according to the quantity of resources assigned to said logical system partitions.

6. The disk array device according to claim 1, wherein said data transfer control part can vary the band control between the cases where data transfer is performed asynchronously system and in which data transfer is performed synchronously.

7. The disk array device according to claim 1, wherein initial data transfer and differential data transfer are included in the data transfer to said external device from said logical system partitions, and said data transfer control part can vary the band control between cases where initial data transfer is performed and where differential data transfer is performed.

8. The disk array device according to claim 1, wherein said data transfer control part limits said data transfer by restricting the amount of data that is written into said logical system partitions from said host device when said data transfer amount exceeds said specified value.

9. The disk array device according to claim 1, wherein said data transfer control part limits data transfer by delaying the response to a data write request from said host devices by a specified preset time when said data transfer amount exceeds said specified value.

10. The disk array device according to claim 1, wherein said channel adapter comprises a data receiving part for receiving data from said host device, a cache control

part for storing the received data in a specified region of said cache memory, a data acquisition part for acquiring data to be transferred from said cache memory to said external device, and a transfer processing part for transferring the data acquired by said data acquisition part to said external device;

    said data transfer control part comprises a first data transfer control part for comparing said specified value and said data transfer amount, and a second data transfer control part for limiting the transfer of data from said logical system partition to said external device when said data transfer amount exceeds said specified value; and

    said transfer amount detection part is disposed in said transfer processing part, said first data transfer control part is disposed in said data acquisition part, and said second data transfer control part is disposed in said data receiving part.

11. The disk array device according to claim 1, wherein at least one cache partition formed by dividing the memory resources of said cache memory can be installed in said logical system partition.

12. A disk array device comprising:

    a channel adapter connected to a host device and external device via a communications port for controlling the exchange of data with the host device and external device;

    a disk adapter for controlling the exchange of data with disk drives;

    a cache memory used by said channel adapter and disk adapter;

    one or more logical system partitions which are constructed by logically dividing the resources provided by

said channel adapter, said disk adapter, a logical unit based on said disk drives and said cache memory;

        wherein said channel adapter comprises:

            a data receiving part for receiving data from said host device;

            a cache control part for storing the received data in a specified region of said cache memory;

            a data acquisition part for acquiring data to be transferred from said cache memory to said external device;

            a transfer processing part for transferring the data acquired by said data acquisition part to said external device;

            a transfer amount detection part for detecting the amount of data that is transferred from said logical system partition to said external device for each of said logical system partitions;

            a first data transfer control part for comparing a specified value that is preset for each of said logical system partitions with the data amount detected by said transfer amount detection part; and

            a second data transfer control part for limiting the transfer of data from said logical system partition to said external disk array device by delaying the response to a data write request from said host device by a preset specified time when it is judged by said first data transfer control part that said data transfer amount exceeds said specified value.

13. A remote copying control method for a disk array device comprising a channel adapter connected to a host device and external disk array device via a communications port for controlling the exchange of data with the host device and external disk array device, a disk adapter for controlling the exchange of data with a memory device, a

cache memory used by said channel adapter and disk adapter, and one or more logical system partitions constructed by logically dividing the resources respectively provided by said channel adapters, disk adapters, memory device and cache memory, said remote copying control method comprising the steps of:

judging whether or not remote copying is to be performed from said logical system partition to said external disk array device;

specifying a logical system partition, from said logical system partition, for which remote copying is to be performed when it is judged that remote copying is to be performed;

detecting the amount of data transferred from said specified logical system partition to said external disk array device;

comparing the maximum transfer amount that is preset for said specified logical system partition with said detected data transfer amount;

limiting the data transfer from said specified logical system partition to said external disk array device by delaying the response to a data write request from said host device by a preset specified time when it is judged that said data transfer amount exceeds said maximum transfer amount; and

performing data transfer from said specified logical system partition to said external disk array device without any limitation when it is judged that said data transfer amount is equal to or less than said maximum transfer amount.

14. A control method for a disk array device comprising a channel adapter connected to a host devices and external device via a communications port for controlling

the exchange of data with the host device and external device, a disk adapter for controlling the exchange of data with a memory device, a cache memory used by said channel adapter and disk adapter, and one or more logical system partitions which are constructed by logically dividing the resources provided by said channel adapter, disk adapter, memory device and cache memory, this control method comprising the steps of:

detecting the amount of data transferred from said logical system partition to said external device for each of said logical system partitions;

comparing a specified value that is preset for each of said logical system partitions with said detected data transfer amount; and

limiting the transfer of data from said logical system partition to said external device when it is judged that said data transfer amount exceeds said specified value.